RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM (RCRIS)

NATIONAL IMPLEMENTATION:

AN EXECUTIVE SUMMARY

OFFICE OF SOLID WASTE
U.S. ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

September 1989

RCRIS
NATIONAL IMPLEMENTATION:
AN EXECUTIVE SUMMARY

THE GOAL:

RCRIS OPERATIONAL NATIONWIDE BY 1992

Results from the 1989 pilot test have confirmed that RCRIS has immense potential for organizing the massive files of RCRA data across the country. Formally known as the Resource Conservation and Recovery Information System, RCRIS is EPA's latest tool for monitoring the nation's hazardous waste handlers while continuing to respect States' autonomy in controlling them. The system has been designed for ease of operation and flexibility, and has been fine-tuned through pilot testing in Region IV (Atlanta, Georgia) and four States - Florida, Georgia, Kentucky and Mississippi.

The goal now is to implement RCRIS in every Region and State by the end of FY 1992. EPA's August 1989 RCRIS National Framework for Implementation calls for all 10 Regions and 39 States to implement RCRIS by the end of FY 1990; for all States to be reporting in RCRIS format by the end of FY 1991; and for all States to become full RCRIS implementers by the end of FY 1992. This schedule was developed cooperatively by EPA and the States. It will be updated quarterly to reflect any necessary changes agreed to by EPA and the States.

RCRIS is replacing the Hazardous Waste Data Management System (HWDMS). During the first two years of RCRIS implementation, both systems will be operational. Plans include the continuation of parallel operations of both RCRIS and HWDMS, where necessary, until the end of FY 1991. The data stored in HWDMS will be archived by the end of FY 1991.

THE BENEFITS OF PARTICIPATION: *COMPREHENSIVE MANAGEMENT OF RCRA INFORMATION*

Managers working with RCRIS will be able to gather, track, and analyze RCRA information:

- ✓ **Easily:** RCRIS is user friendly and employs sensible, recognizable data elements.
- ✓ **Flexibly:** RCRIS has been designed to allow for necessary modification, now and in the future.
- ✓ **Distinctively:** States and Regions can choose the hardware and software options that match their current needs.
- ✓ **Accurately:** When users "own" the data they work with, accuracy automatically becomes a personal goal.
- ✓ **Knowledgeably:** RCRIS users can get access to information in other related EPA data bases.

The diverse needs of users at EPA Headquarters, Regions, and States have all been analyzed and answered in one system. RCRIS provides a way to satisfy both individual and shared information processing requirements. Indeed, RCRIS was designed to reflect the prized goal of partnership between EPA and the States in managing RCRA-permitted waste handlers.

The States, as hands-on management partners, have particular data needs that are unique to their operations. EPA Regions and Headquarters, as overseers and quality control partners, have their own information requirements. Often, the same data elements serve both purposes. RCRIS development has helped foster and strengthen the State/EPA partnership. While analyzing and discussing RCRA information needs together, RCRA managers across the country evolved a deeper understanding of one anothers' roles and responsibilities.

THE FEATURES:

SOMETHING FOR EVERY RCRA MANAGER

"TWO-DOMAIN" CONCEPT SATISFIES DUAL INFORMATION NEEDS

The two-domain design on which RCRIS is founded makes possible a data-sharing partnership that meets the individual and common information needs of all RCRA managers.

The two domains of RCRIS are the Implementer Domain and the Oversight Domain. These domains, or sets of data elements, are not distinct and separate. The Oversight domain is actually a subset of the Implementer domain.

- **Hands-On Managers Use the Implementer Domain.** This domain is designed to collect, enter, track and report day-to-day RCRIS information. It deals with such activities as handler identification, permitting, inspections, and enforcement actions. Both States and EPA Regions will use the RCRIS implementer functions.
- **RCRA Oversight Managers Use the Oversight Domain.** This domain is designed to track and report the management information required to review RCRA program performance and to develop budgeting and program management strategies. EPA Headquarters and Regions will use the RCRIS oversight functions. States can also use these functions for State-level oversight activities.

RCRIS WAS DESIGNED FOR COMPATIBILITY

Because RCRA managers indicated a need to employ several different hardware/software configurations, RCRIS designers gave considerable thought to making the system optimally compatible with different system architectures. Written in FOCUS—a single database language—RCRIS:

- Runs on IBM-compatible mainframes *and* PCs.
- Can be installed simply on most IBM or IBM-compatible hardware.
- Allows small programs to continue manual record keeping and paper reporting.
- Accommodates other systems. States committed to non-IBM hardware or non-RCRIS software can develop their own software program that "translates" their data into RCRIS format for monthly transfers of data to EPA Regional offices.

Six Basic Modules Track a Broad Range of Information

RCRIS tracks a wide range of information related to facilities that generate, transport, and/or treat, store, and dispose of hazardous waste. This information is under RCRIS' six major modules, or applications (see Figure 1):

- **Handler Identification (HID).** Tracks and maintains descriptive information on regulated hazardous waste facilities, generators, and transporters.
- **Permitting, Closure, Post-Closure (PMT/CL/PC).** Tracks information on the status of permit applications for hazardous waste facilities.
- **Compliance Monitoring & Enforcement (CM&E).** Tracks and maintains data on inspections, violations, enforcement actions, and return to compliance.
- **Corrective Action (CA).** Supports the permit-writing and program-enforcement coordination necessary for an effective corrective action program.
- **Program Management (PM).** Supports the State, Regional, and national management and evaluation needs of the RCRA program.
- **Facility Management Planning (FMP).** Supports the development and analysis of facility management plans.

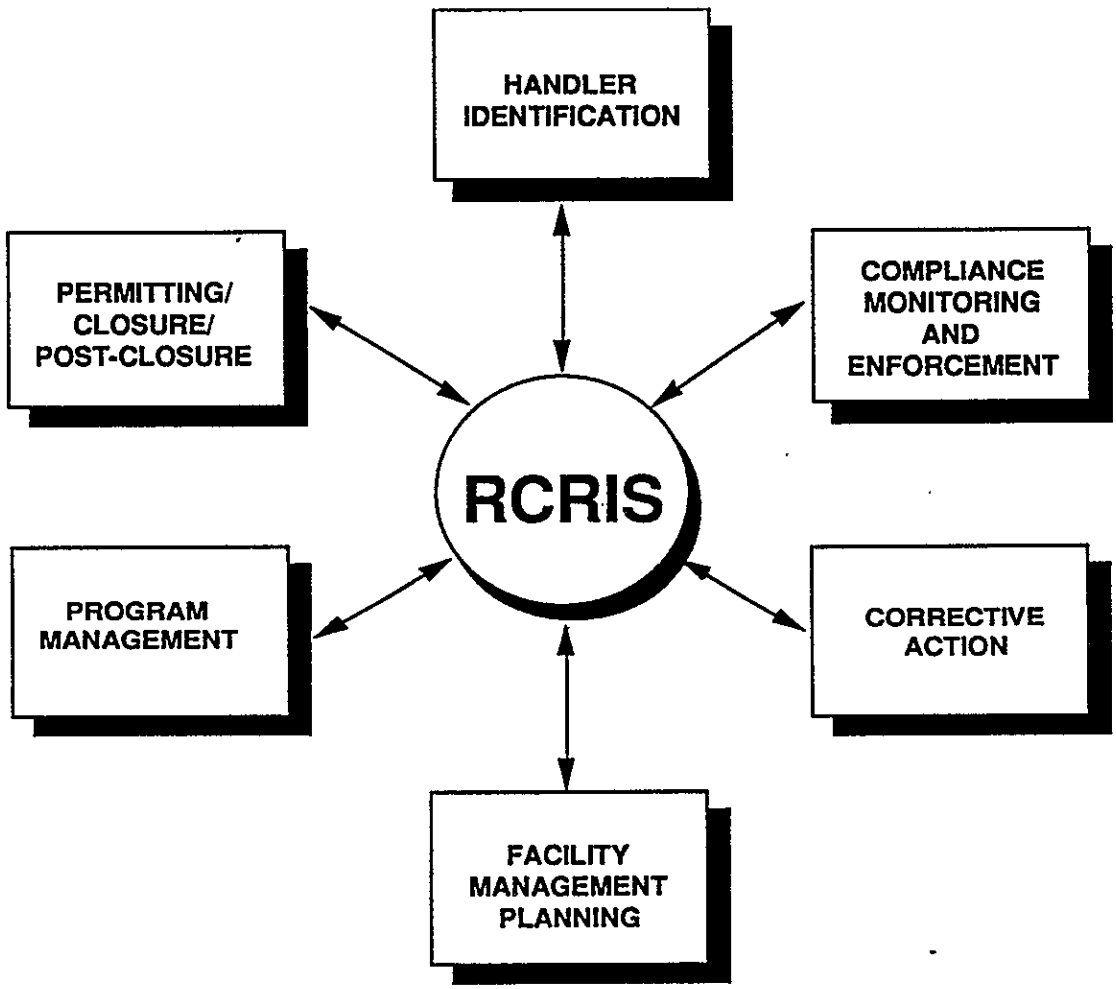

FIGURE 1

Among the many functions built into RCRIS to support the six modules are the Data Assessment and Database Administration functions.

- **Data Assessment (DA)** Provides automated software controls to ensure the accuracy of data and to generate audit or exception reports to ensure data quality and data integrity.
- **Database Administration (DBA)** Allows the RCRIS database administrator in each State and Region to maintain the integrity and status of the entire system.

FY 1989 ACCOMPLISHMENTS:

TESTED AND READY TO GO

The RCRIS project has made a great deal of progress in the past year. The Pilot Software was completed in March 1989. The RCRIS Pilot was conducted in Region IV over three months. Kentucky tested the manual (paper reporting) method; Mississippi piloted RCRIS on the PC; Georgia tested RCRIS on the Regional Logical Mainframe; and Florida piloted the RCRIS "translator" software, which converts State data to RCRIS format. The EPA Regiona IV Office tested RCRIS on their Regional Logical Mainframe.

Participants were asked to evaluate the entire RCRIS system, including both software and support systems. Their responses pinpointed four areas where efforts should be concentrated in preparation for national implementation:

- Response time of software
- System "bugs"
- Training and documentation
- Telecommunications

Based upon the pilot results, the RCRIS team set to work on modifying the software, revising both the documentation and training materials, and redesigning the training framework. The modifications and revisions have been completed and RCRIS is now ready for national implementation.

THE GROUNDWORK:

GETTING READY FOR RCRIS

To prepare for RCRIS implementation, States and Regions will:

- Clean up their HWDMS data;
- Choose a hardware/software configuration;
- Determine parameters for converting HWDMS data to RCRIS;
- Prepare the Memoranda of Understanding between each Region and State, including the Implementer of Record (IOR) assignments;
- Install RCRIS on the equipment they have chosen;
- Convert data to RCRIS format;
- Reconcile the converted data.

THE FUTURE:

WORKING TOWARD NATIONAL IMPLEMENTATION BY 1992

Training

EPA Headquarters has developed training plans which support both initial implementation and long-range operation. A week-long RCRIS Training Program will be conducted in each Region during Fiscal Year 1990. Trainers will instruct RCRA staff on each module and other RCRIS functions.

After the initial year of implementation, EPA Headquarters plans to offer two training sessions to each Region per year. This training is designed to re-enforce the original training, introduce new aspects of RCRIS and train newly added personnel. RCRIS training will also be offered at RCRIS and RCRA related conferences. In addition, EPA Headquarters will sponsor an annual meeting of RCRIS users employing translator software in Washington, D.C.

User Support

User support is essential to success and has been made a key function of the National Implementation Strategy. In addition to supporting a toll-free RCRIS User Hotline, EPA Headquarters will sponsor national user group meetings twice each year. The toll-free User Hotline number is 1-800-767-RCRI.

Configuration Management

A configuration management process has been developed to encourage continued Regional and State input into future operations and modifications of RCRIS. The RCRIS configuration management process will be undertaken as follows:

- A representative **Configuration Management Board** will review programmatic and technical issues and make preliminary decisions about modifying and enhancing RCRIS.

- With input from other users, **Workgroups** will evaluate and recommend changes and enhancements to RCRIS.

- Bi-annual National **User Group Meetings** will foster communications between RCRIS partners and provide a forum for raising issues and suggesting RCRIS modifications and enhancements.

- The **Technical Manager and Staff** will manage the User Support Hotline, distribute issues to appropriate workgroups, communicate results and recommendations to users, and facilitate the activities of the Configuration Management Board.

October 16, 1989

TO: Howard Steeley
Claude Sappington
Julie Sellick
Clar Pratt
Dick Burkhalter
Toby Michelena
Tim Nord

FROM: Dan Kruger Dan

SUBJECT: RCRIS Teleconference Videotapes / RCRIS Training

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I have just received two copies of the RCRIS satellite teleconference I had videotaped. These will be made available for you to check out for a one week period. Please call Holly Sullivan at 459-6281 to arrange.

I am also attaching to this memo, a training schedule and class outline that is proposed for Region X and Washington State. We are scheduled to have one week of training, January 8-12, 1989 in Seattle.

My current focus in the RCRIS project is on equipment acquisition and distribution, and revising the RCRIS implementation plan.

attachments

cc: Tom Cook
Rich Mattrass

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 8

OFFICE OF
SOLID WASTE AND EMERGENCY RESP

MEMORANDUM

SUBJECT: RCRIS Training Schedule and Outline

FROM: Myra Galbreath
RCRIS Technical Manager, OSW OS-312

TO: RCRIS Regional Project Officers

As you know National Implementation of RCRIS will begin this fall. We will provide a one week RCRIS training session as RCRIS is implemented in your region. RCRIS training will be offered twice yearly in each region. The location of each session within the region will be determined jointly by each region and their states. These sessions are designed to make you more familiar with the overall structure of RCRIS as well as give you hands-on data entry experience working with the modules.

During our first year of implementation we will provide a second training session for those regions who are beginning implementation within the first six months of the fiscal year.

In preparation for the training week you'll be contacted by the trainers. They will send you a check-list indicating items from equipment to site logistics to attendees concerns. The training week is designed so that individuals can attend all sessions or just the ones of interest to them.

Attached you will find:

- the schedule for the training week,
- a class outline for each session,
- recommended tracks for training attendees, and
- a calendar for next fiscal year.

Please review our draft calendar and our proposed schedule of training events and send any changes or comments to me via e-mail (EPA5388) by October 16, 1989. If you have any questions please feel free to call me (FTS-382-4744).

cc: Loretta Marzetti
Richard Hayes (NGA)
RCRIS Regional DBAs
Joe Acton (OWPE)

January 1990 RCRIS Training Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	New Year's Day 1	2	3	4	5	6
7	8	9	10	11	12	13
14	Martin Luther King Jr. Day 15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Region X Training - Washington

RIM Meeting

February 1990 RCRIS Training Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	Lincoln's Birthday 12	13	Valentine's Day 14	15	16	17
18	Washington's Birthday 19	20	21	22	23	24
25	26	27	Ash Wednesday 28			

Region III Training - West Virginia and Delaware

Translator Meeting - Washington D.C.

Region VI Re-training - Oklahoma and New Mexico

These training week dates are subject to change.

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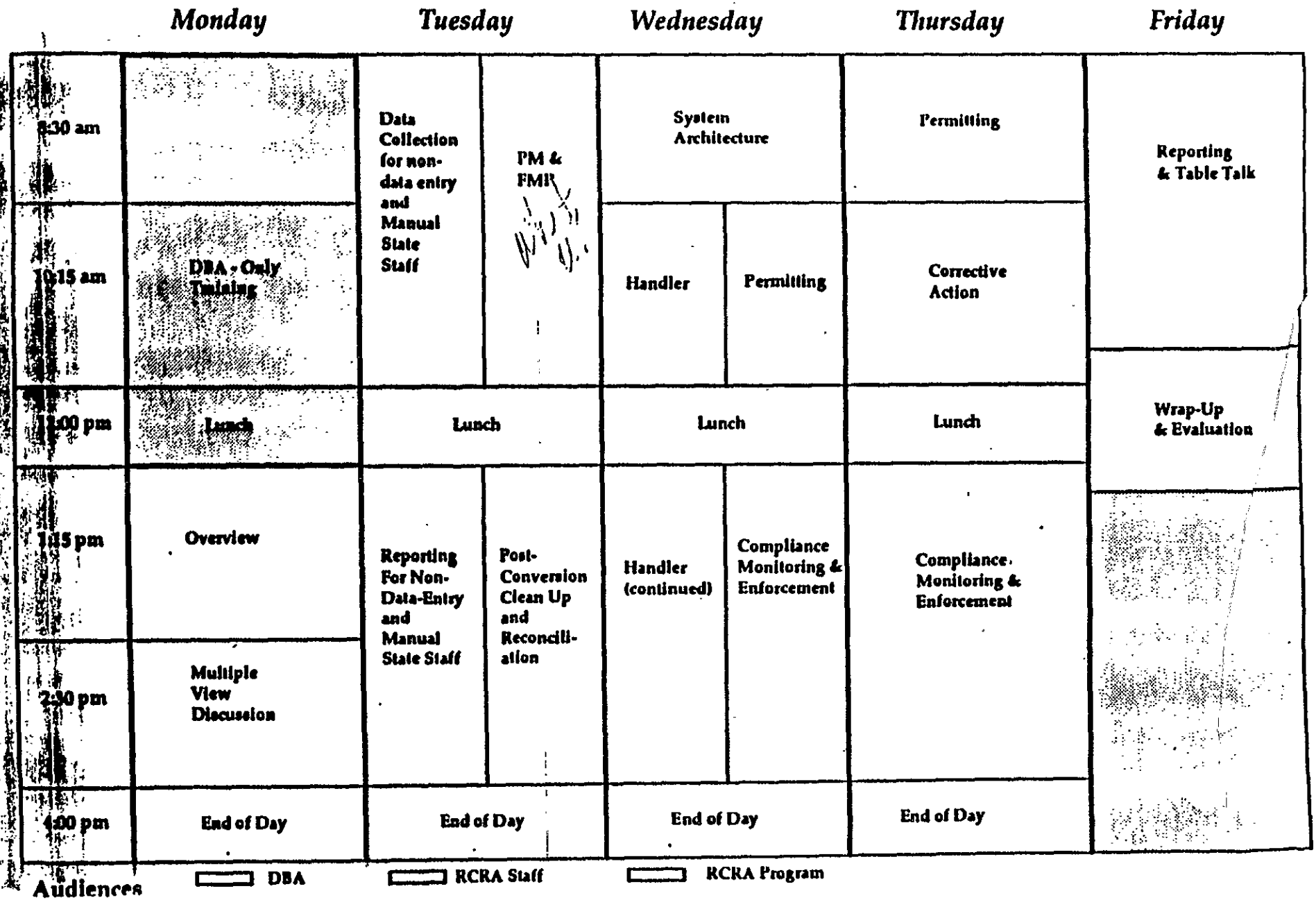
RCRIS Training Week Schedule



RCRIS TRAINING WEEK CLASSES OUTLINE

Overview Presentation
Audience - DBAs, Program Managers (data entry and program staff)
- RCRIS Introduction and Overview
- How RCRIS Works with RCRA
- What will be covered during the training week.
- Personnel Roles for State and Regional Staffs
- Milestones -- what to do upon return from training.
- User's Guide/ User Support/Data Element Dictionary

Multiple View Discussion
Audience - DBAs, Program Managers (data entry and program staff)
- Multiple Views -- Two Domain Concept
- MOU/IOR
- DBA's role (low tech)
- PM and FMP Discussion of Reports (low tech)
- Universe Calculations
- Merge (low tech)

Data Collection for Non-Data Entry and Manual State Staff
Audience - Program Managers, Manual State Staff
- Discussion of Forms by Module
- Hands-on Exercises with Forms
- Turn-around Documents

Reporting for Non-Data Entry and Manual State Staff
Audience - Program Managers, Manual State Staff
- RCRIS Reporting Overview - types of reports and how to generate them
- LMF Log-on
- TableTalk

Data Base Administration
Audience - DBAs
- Control File Maintenance
- MOU/IOR Table Maintenance
- Security
- Back-ups
- Merge Process
- Oversight Reports
- User Guide/User Support/Data Element Dictionary

Program Management and Facility Management Planning
Audience - Program Managers
- Discussion of the Modules
- Hands-On Exercises

Post Conversion Clean-Up and Reconciliation
Audience - DBAs, Managers

- Discussion of the Process
- Hands-On Exercises with dummy State/Region data

Handler
Audience - Data entry staff, program staff

- Discussion of the Module
- New Notifications and Part A Forms
- Supplemental Forms for RCRIS
- Hands-On Data Entry Exercises
- Reports from this specific Module

Permitting
Audience - Data entry staff, program staff, permit writers

- Discussion of the Module
- Hands-On Data Entry Exercises
- Reports from this specific Module

Compliance Monitoring and Enforcement
Audience - Program staff, data entry staff, compliance officers

- Discussion of the Module
- Hands-On Data Entry Exercises
- Reports from this specific Module

Corrective Action
Audience - Program staff, DBAs, . .:a entry staff

- Discussion of the Module
- Hands-On Data Entry Exercises
- Reports from this specific Module

Reporting - TableTalk
Audience -

- Details about running RCRIS Reports
- Generating TableTalk Reports

RECOMMENDED TRACKS FOR TRAINING ATTENDEES

Manual States and Non-Data Entry Staff

Monday:	Overview, Multiple View Discussion
Tuesday:	Data Collection for Non-Data Entry and Manual State Staff, Reporting for Non-Data Entry and Manual State Staff
Wednesday:	System Architecture

DBAs an Program Managers (as well as anyone who needs to attend all sessions)

Monday:	Overview, Multiple View Discussion
Tuesday:	PM & FMP, Post Conversion Clean-up and Reconciliation
Wednesday:	System Architecture, Handler
Thursday:	Permitting, Corrective Action, CM &E
Friday:	Reporting & TableTalk

Data Entry Staff

Wednesday:	System Architecture, Handler
Thursday:	Permitting, Corrective Action, CM &E

The classes sessions are designed so that individuals either could attend all sessions or just go to the ones of interest to them. For example a permit writer or compliance officer could attend the Permitting and CM & E sessions only, if they desired.

STATE OF WASHINGTON

RCRIS

IMPLEMENTATION PLAN

DRAFT

APRIL 1989

TABLE OF CONTENTS

PREFACE

The purpose of the RCRIS Implementation Plan is to document the strategies and planned activities of implementing the RCRA Information System (RCRIS) in Washington State and EPA Region X (Region X). It includes a schedule of concurrent implementation activities and serves as both a management tool and as a source of information for all RCRIS users.

This draft of the implementation plan reflects the fact that planning decisions are still being made as this document is being written. Many references are provided to indicated decisions yet to be made and information that remains to be gathered. As decisions are made the implementation plan will be modified.

Throughout the development of RCRIS, EPA headquarters and their contractors have already written many summary documents that address the history and development efforts of all parties involved in the RCRIS project. I have included many of their ideas and discussions throughout the plan. All readers are encouraged to review the plan to get a complete picture of the scope of RCRIS.

BACKGROUND

Neither the current EPA data management system (HWDMS) or the state data system (see Appendix 4) meet the complex information needs of the RCRA program. RCRIS, which stands for the RCRA Information System, was developed jointly by EPA and the states to fill a common need to track and maintain timely and accurate information on permitting, compliance, enforcement, and notification. The premise being, "good data" leads to better policy and management decisions.

The need for RCRIS in Washington is critical. We currently do not have a statewide data management system in operation. The original headquarters tracking system was used from 1984 through 1987. The data from the tracking system was used as the official record and transmitted to EPA monthly. During this same period a PC based tracking system was being developed by Central Operations to meet the tracking needs of regional offices and operations management. The "plan" was to run parallel operations of the regional and headquarters systems for a three month period. Once consistency was achieved between systems then the headquarters data system was to be dropped. However, the regional data system was never implemented in all regions. Reasons such as, staff turnover, equipment shortage, lack of technical expertise and training all contributed to the problem. Although both systems were designed to meet the information requirements during this period, lack of coordination resulted in duplication of effort and eventual abandonment of both systems. The need for a new comprehensive data management system is essential for the Department of Ecology to administer the RCRA and state hazardous waste program effectively and jointly with EPA Region X.

The State of Washington has played a major role in the development of RCRIS from the beginning. Our main goal has been to provide technical assistance to EPA through the National Governors Association (NGA) and other states, in designing the functional

requirements of RCRIS to meet both the needs of the states at the implementer level and also the needs of EPA at a regional and national level (called oversight). RCRIS was designed around the needs of implementers of RCRA and the reporting needs of oversight. The term coined was the "TWO DOMAIN CONCEPT" to reflect the information requirements of both groups.

Washington's involvement began with the first RCRIS meeting held in Washington D.C. on January 1986 and continues today. The long delay in implementing RCRIS in the states and nationally has many reasons most of which corresponds to the inherent complexity of the RCRA regulations themselves. But what is more a factor in the delay (and hopefully resulting in a better system) was EPA willingness to bring all states into the process of designing a national information system. The major workload was in two areas. Creation of the two domain concept which was simple in theory but complex in implementation. The second difficulty was designing a data management system based for personal computers on a highly distributed basis. The technical difficulties of these two concepts are substantial.

EPA Headquarters is currently testing RCRIS software in a pilot project in Region IV. Results from the pilot will be reviewed by the states, NGA, and EPA to ensure that RCRIS meets our expectations. Our state implementation plan will be modified according to the latest information available.

SOLID AND HAZARDOUS WASTE PROGRAM ORGANIZATION

Under direction of the new director, Christine Gregoire, the Department of Ecology was reorganized during 1988 to bring all regional staff under direct control of the programs. In February of 1989 the Solid and Hazardous Waste (S/HW) Program also reorganized to clarify the roles and responsibilities of line staff (inspectors, permit writers) from program support staff (regulatory development functions). Chart A shows the entire S/HW program and the line and support functions for each section. Chart B lists the staff under each section. The program currently does not have a computer information consultant (CIC) on staff. This was a new position created in the reorganization and will be filled the first part of July 1989. It is hoped that this person will act as the RCRIS data base administrator (DBA) for the S/HW program.

The current organizational structure has the responsibility of RCRIS development under the HW Information and Planning section. This section is subdivided into two units. The HW Information unit manages both the notification data base, annual hazardous waste reporting (including the EPA Biennial report), as well as other data needs such as the SARA Capacity Assurance Plan analyses.

The responsibility of RCRIS coordination in the state currently resides in the HW Information Unit (Chart C). Presently the unit has five staff: one clerical; three environmental specialists; and one unit supervisor who qualifies as the technical expert for the program on information systems, including RCRIS, and will direct the program's CIC in RCRIS related DBA activities.

The responsibilities of RCRIS implementation will fall with the regional offices, Hanford, Industrial, and Permitting sections. For purposes of this plan the term "region" includes the aforementioned sections. The program has currently allotted 2.0 FTE's for RCRIS

activities in the regional offices. These staff will work on data clean-up activities during the start up of RCRIS in Washington.

CHART A.

SOLID AND HAZARDOUS WASTE PROGRAM FUNCTIONS

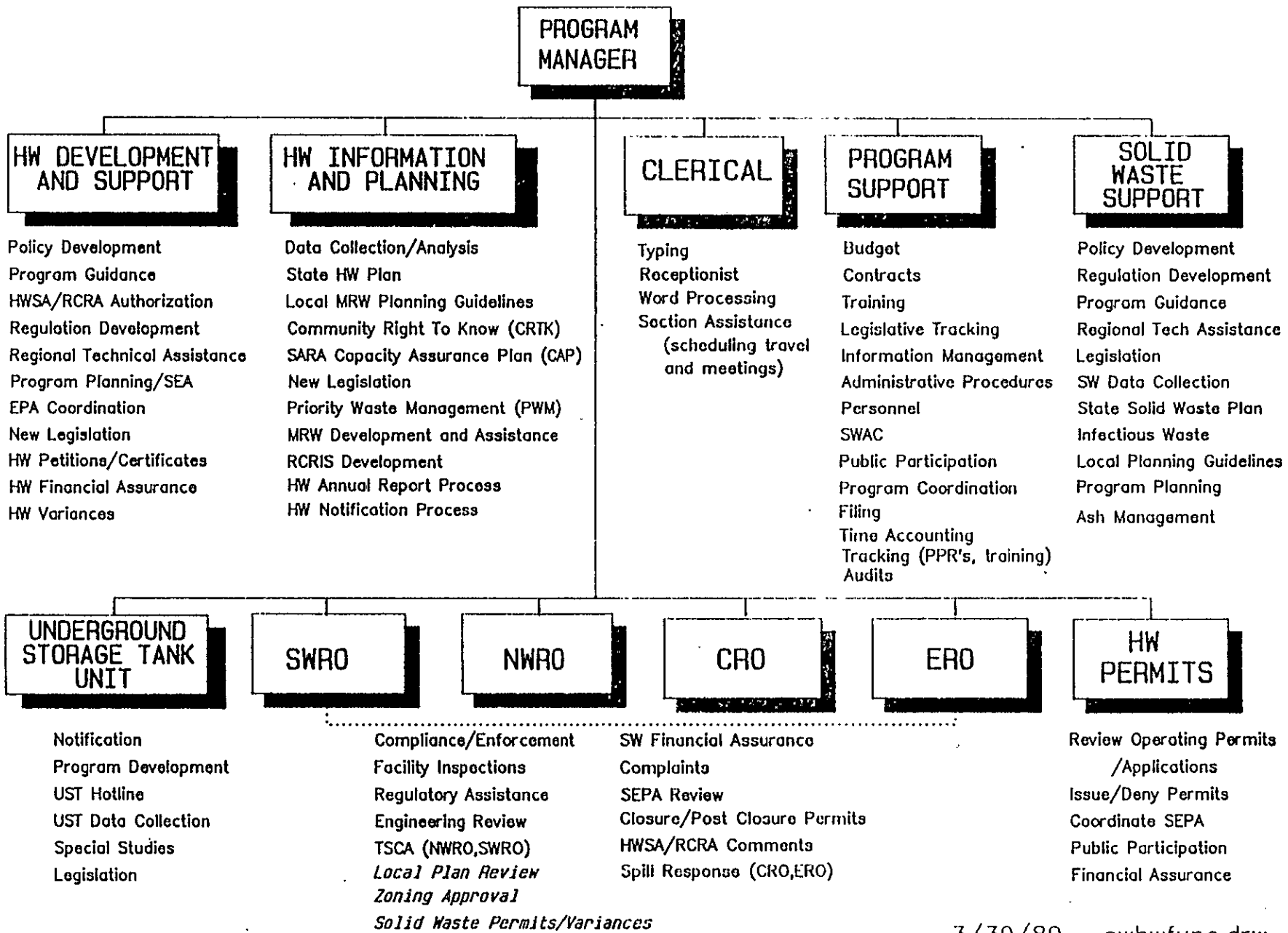


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CHART B.

SOLID AND HAZARDOUS PROGRAM HEADQUARTERS ALIGNMENT

PROGRAM MANAGER
Thomas Eaton

3/30/89

* Temporary Section Supervisors

HW DEVELOPMENT AND SUPPORT
* Jim Sachet

Marsha Beery
Hugh O'Neill
Vern Meinz
Vacant EP2
Karen Michelena
Dan Wyre
Dave Davies
Dave Rountry
Tuan Vu

HW INFORMATION AND PLANNING
Tom Cook

Vacant E-IV
PWM Position
Susan Ridgley
Miles Kuntz
Bill Green
Larry McCallum
Sally Toteff

Dan Kruger
Dave Saunders
Dave Misko
Kerry Slattery
Holly Sullivan
Vacant E2 (CRTK)
Vacant E3 (CRTK)

HW Permits
Tim Nord

Cullen Stevenson
Vacant SE3
Dave Polivka
Vacant SE2
Lisa Newman
Salazar (.1)
Robert Carruthers
Carol Knudson

SOLID WASTE SUPPORT
* Leighton Pratt

Al Hanson
Randy Martin
Rick Renaud
Vacant SE2 (Ash)
Vacant EP2
Tamara Gordy (Temp)
Cate Holmes Stilson
Rich Mattrass

Mark Fuchs
Ali Raad
Dave Dubreuil

UST UNIT

Thom Lufkin-Unit Supervisor
Kaia Petersen
Steve Anderson (Temp)
Alyn Ward
Jean Witt

CLERICAL SUPPORT
Kathy CharLee - Supervisor

Bert Ponton
Cathi Silva
Vickie Van Ness

Maureen Garrett (.6)
Pam Berns (.6)
Reitha Anderson

PROGRAM SUPPORT
* Dru Butler/Lorie Hewitt

Vacant EP3
Wynn Hoffman
Pati Hill
Steve Robbins (Temp)

Tom Loranger
Ron Skinnerland
Linda Keifer (Temp)

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CHART C.

HW Information Unit

UNIT SUPERVISOR

Long Range Planning

- RCRIS Implementation/Coordination
- SARA Capacity Assurance Project
- Inter–Program Information Coordination (SARA Title III & HW)
- Intra–Program Information Coordination (WWR & S/HW)

ANNUAL REPORT TECH. REVIEW & ANALYSIS

Timely & Accurate Data Collection & Analysis

- Technical Form Review
- Forms Development
- Summary Report Preparation
- Data Analysis and Research
- Enforcement

DATA UTILIZATION AND COORDINATION

Solicite and Respond to Information Requests

- Regional Liaison
- Program Liaison
- Public Outreach
- Notification System
- Effective Data Utilization

TECHNICAL SUPPORT

Handle Technical Requirements

- SAS/Focus Programming
- Network Support
- EPA interface
- Hardware/Software Support

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WASHINGTON STATE IMPLEMENTATION STRATEGIES

Washington State intends to be a full RCRIS user. Critical factors in implementing RCRIS in Washington are funding staff, equipment, and training. Presently the S/HW Program does not have any 386 type personal computers recommended by the RCRIS development team to operate the RCRIS system. The Department of Ecology has submitted a $50,000 grant proposal to Region X to purchase six 386 personal computers (see APPENDIX #3). Depending upon the monies provided, the state has three options it can pursue. The following strategies are brief summaries of the options available to the program. A complete discussion of the preferred option is discussed in the following section titled RCRIS System Operation. Upon completion of a workload analysis, a final determination will be made on the most appropriate option for RCRIS implementation.

Option 1. Full RCRIS Implementation (most preferred)

Assuming full funding for all equipment needs all regions will be fully automated. All data will be entered directly into the regional office computers and electronically submitted to Ecology headquarters monthly. Headquarters will provide final data quality assurance/control (QA/QC) checks and submit the statewide data monthly to Region X.

Option 2. Phased RCRIS Implementation

Assuming only partial funding for RCRIS activities is provided. Only some regions would be automated based on a workload analysis (not yet completed). The automated regions will

input data directly into RCRIS and produce their own management reports. The headquarters office would provide automated support to the regions implementing a manual reporting system. Manual regions would send hard copy reports to headquarters where they would be entered into RCRIS. Headquarters would provide management reports to the manual regions.

Option 3. Manual RCRIS Implementation (least preferred)

Assuming no monies are available from either a state or federal source the minimum reporting requirements are to submit hard copy reports containing all information required in the SEA to Region X on a monthly schedule (usually the 20th of the month). Region X would input the data into RCRIS and submit data printouts to the state for validation of the information. This is essentially the process that is occurring today.

RCRIS SYSTEM OPERATION (OPTION 1)

1. SYSTEM ARCHITECTURE

In order to maintain maximum flexibility at this time, two system architectures are available to Ecology. One relies on utilizing the state IBM mainframe computer and the other depends solely on the PC based architecture. RCRIS was designed to run on either mainframe or PC systems.

The first option is to link all RCRIS PC's to the state mainframe IBM computer which will store all statewide data, perform all major data manipulations, and produce large volume hardcopy reports on the 3800 laser printer. Data would be uploaded to the mainframe from the automated regional and headquarters offices, with HQ performing the data base administration (DBA) functions on the data before release to Region X.

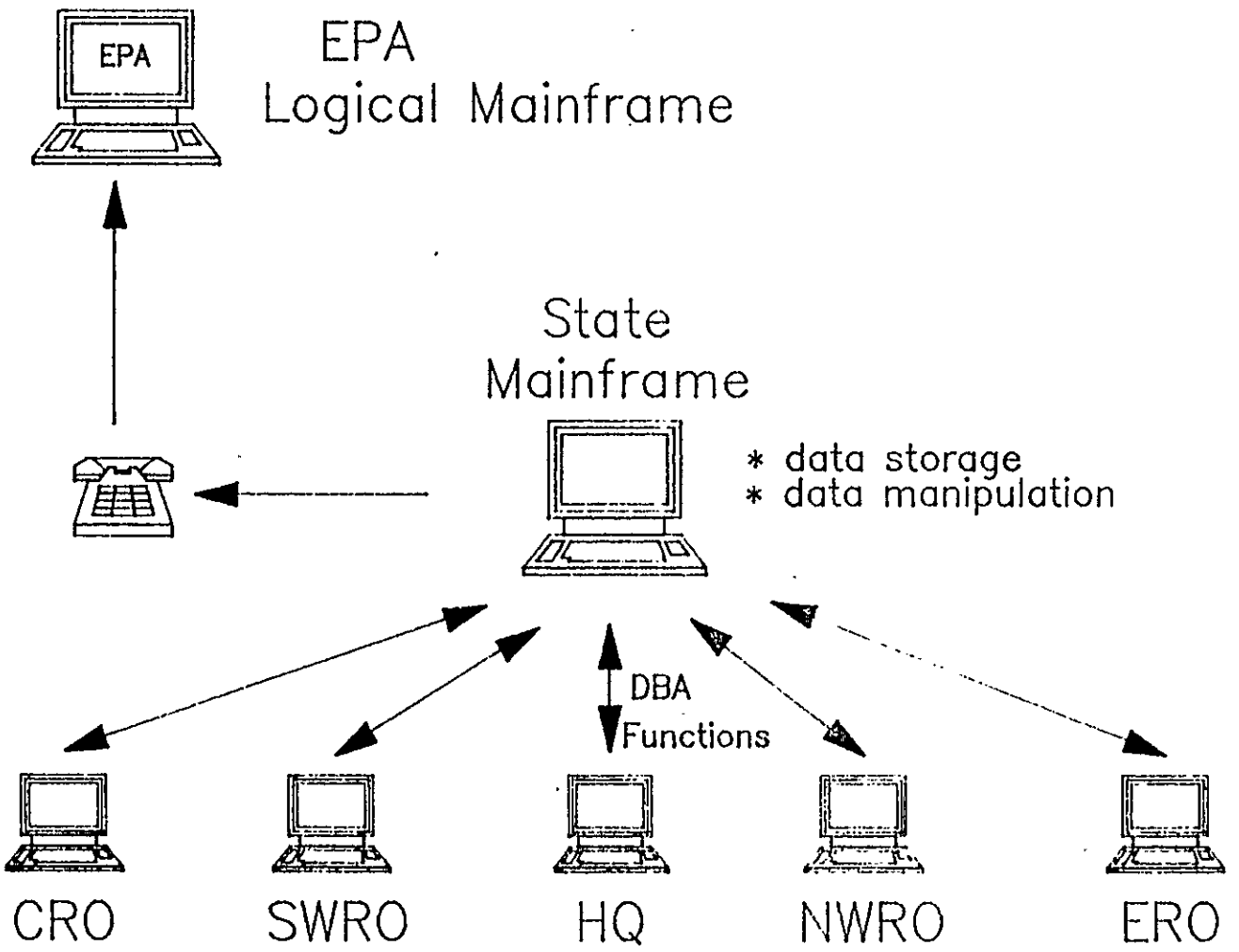
The second option is to implement RCRIS using personal computers as stand alone system which will follow the standard define operations as described in other RCRIS documentation.

No decision has been made of either option. Interviews with the regions will help determine the better operating environment for RCRIS in Washington. Depending upon our evaluation and results from the pilot project the most efficient and cost effective option will be determined.

2. DATA BASE INITIALIZATION

Guidelines from EPA HQ are being tested in the RCRIS pilot project. However, at this time, the state is intending to let Region X use HWDMS data to initialize RCRIS data

RCRIS System Architecture - Mainframe Based



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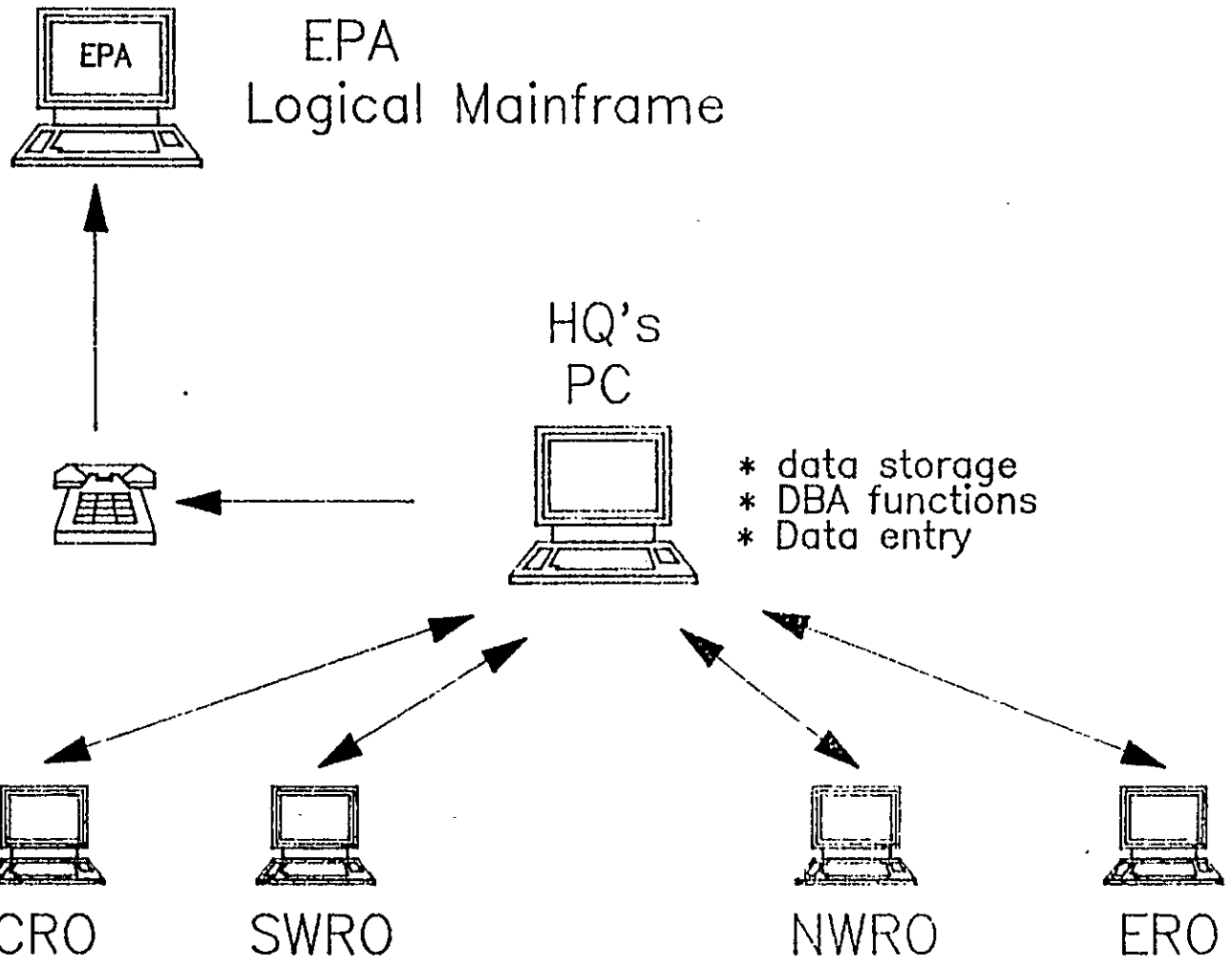
RCRIS System Architecture - PC Based



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base. RCRIS conversion rules on HWDMS data into RCRIS format will provide some of the data quality checks. However, many of the data elements in HWDMS are not transferable and will require complete file audits and data entry of new data elements. The guidance from EPA Headquarters is to load the system with all data from actions initiated in FY88, pending actions, and all permitting activities. Region X and the state are currently developing this assessment at this time. Depending upon the results of this analysis the state and or Region X may elect to load in more historical data if resources allow.

3. DATA TRANSFER TO OVERSIGHT

Exhibit 4 shows both state and Region X using RCRIS software as implementers. Each implementer has their own implementer data base (IDB). Each IDB must maintain unique and complete sets of facility data (i.e. no facility may be split between IDB's). This is necessary to eliminate any problems in combining data at the oversight level.

After the RCRIS data base is initialized only subsequent IDB changes need to be transferred to the merged data base (MDB) at the region. A Change Table is maintained at each IDB for all RCRIS data entry and manipulation modules. This table provides the required intelligence for extracting only those portions of the data that have actually changed since the last extract. Successful extracts cause the Change Table to be re-initialized so that only the most recent updates are referenced. Data transfers will be done monthly on a date to be determined. The actual mechanics of the transfer are being developed at this time and are dependent upon the equipment the state will receive for RCRIS operation.

The MDB resides on the Region X logical mainframe system. Once the update transactions received from the state are quality checked and verified by the implementer then the data is sent to the National Oversight Data Base (NODB).

4. HARDWARE AND SOFTWARE ACQUISITION/INSTALLATION

On-going funding questions on equipment preclude any further work on this issue. However, in any acquisition we will be using the state procurement process for computer equipment. Personal computers will be IBM compatible.

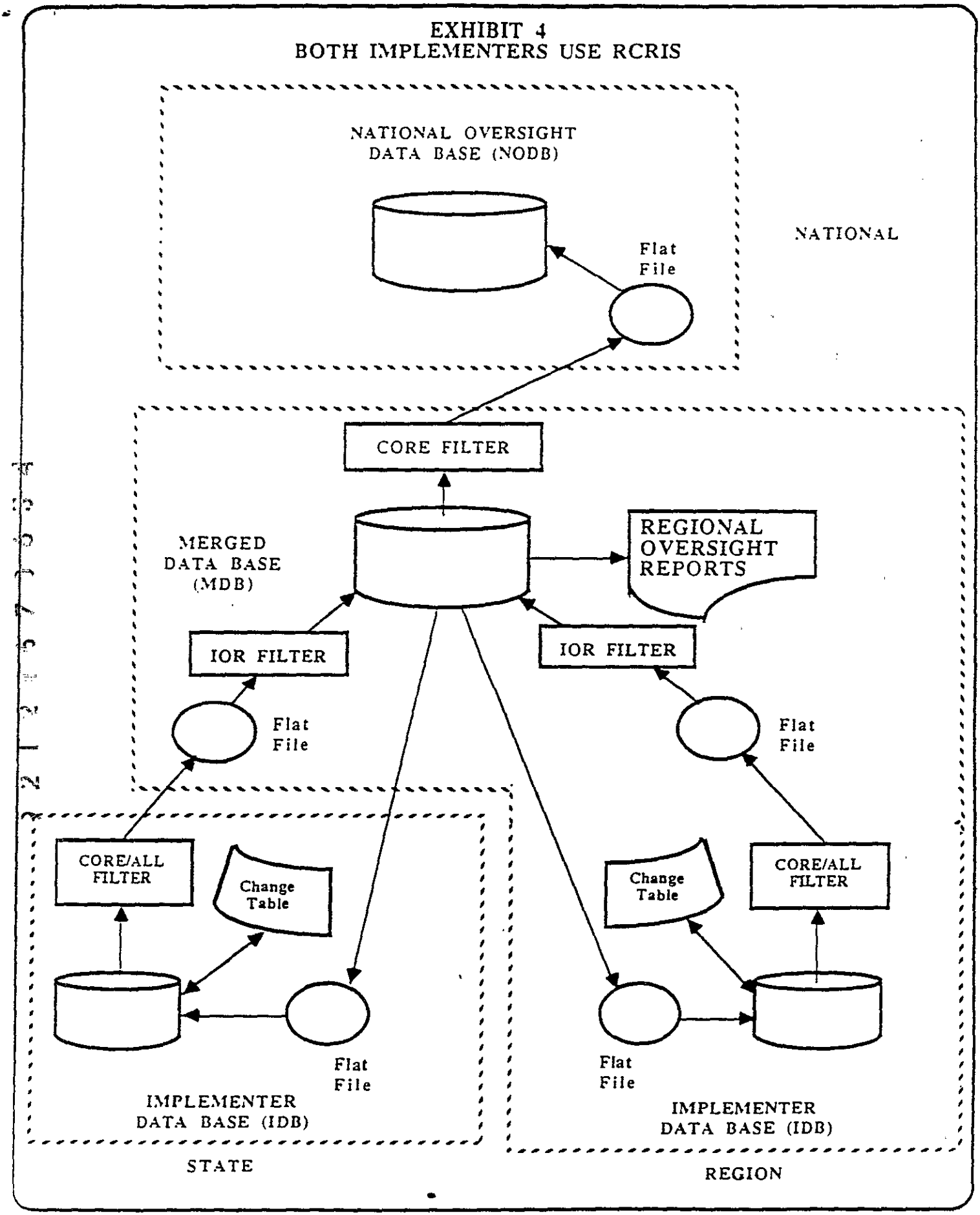
Information of installation will be delayed until further information is available on equipment monies.

5. RCRIS PERSONNEL

Currently the program has available 2.8 FTE's for RCRIS activities. Initial efforts to acquire resources in early 1988 in the Head Start II process resulted in the establishment of 2.0 FTE's at an Environmental Technician (ET-II) for regional RCRIS activities. Hiring of these positions may not have occurred. Headquarters also allocated 0.3 FTE's from the federal grant to do RCRIS related activities. Under the program reorganization a CIC-II position was created to provide support in information management. It is estimated that 0.5 FTE's needed for the CIC to get RCRIS on-line and functioning. The following table shows existing staffing for RCRIS:

Pilot Coordinator:	Dan Kruger	0.3 FTE
Data Base Administrator:	CIC-II (vacant)	0.5 FTE
Data Entry:	ET-II	2.0 FTE's
		2.8 FTE's

EXHIBIT 4
BOTH IMPLEMENTERS USE RCRIS



After completing the workload model as described below, we feel that we will have a good handle on the resources needed to implement a RCRIS system in Washington.

6. WORKLOAD MODEL

Since RCRIS is a new system actual workload estimates for actual data entry effort are currently not available. As mentioned previously many of the elements needed to conduct a complete workload analysis are being quantified in the pilot at this time. Resource levels associated with training, data entry, file reviews, QA/QC, data analysis, report preparation, Ad Hoc queries, and data transfer are all being tracked in the pilot. Linking these time estimates with the volume of data to be input, both historical and current information, will yield an accurate assessment of our resource needs. The pilot workload results will be available hopefully in late June 1989 and will be incorporated in the final implementation plan.

Until these workload estimates are made available our approach will be to identify the universe of RCRIS activities sas follows:

(1) size of regional universe
(2) number of inspections for FY89 (generator/TSD)
(3) number of permits
(4) estimated number treatment/storage permit call-ins
(5) historical number of data base transactions for FY88, pending actions, and state only transactions we want to track in RCRIS

In addition to the actual times predicted for RCRIS activities other factors will also determine resource and equipment needs such as:

(1) Degree of automation desired (equipment capabilities, staff training)

(2) Centralized headquarters system or decentralized regional system or combination

(3) Data entry by inspectors or ET-II's

(4) Types and frequency of reports requested

(5) Quality control of data entered

(6) Volume of the data to be transferred

Because of the differences in workload and RCRIS operational preferences from region to region, no single answer makes sense. Through this plan the best option for each region will be identified. A series of interviews will be conducted in April and May 1989 to determine the best operational configuration for RCRIS.

A table will be developed to delineate the relative workload for each region by the factors listed above.

RCRIS IMPLEMENTATION TIME FRAMES

1. NATIONAL IMPLEMENTATION

The following major milestones for RCRIS in relation to the RCRIS pilot demonstration and national implementation are listed below. Particular attention must be made to the time frame for national implementation of RCRIS. Due to resource constraints within EPA Headquarters immediate nation-wide implementation of RCRIS is not possible. EPA has developed a national strategy of a three phased approach. This is to ensure that each state and EPA Region get the required support for bringing up the new system. EPA Regions and states will be selected primarily on the basis of technical readiness and capabilities such as equipment purchased, staff hired, and status of data clean-up. In addition EPA HQ will also consider the desire of the Region and state to begin RCRIS implementation. The downside to this approach is that those state falling in the third phase will not come on-line until September 1990, eighteen months from now. EPA will be closely monitoring the pilot and how well the software is working and will be making adjustments to the national implementation strategy as needed.

PILOT DEMONSTRATION

Pilot

Pre-pilot workup	2-1-89	to	3-15-89
Training	2-1-89	to	4-28-89
System Installation & conversion	3-17-89	to	4-24-89
System installation & reconciliation	3-27-89	to	4-26-89
Review pilot operation	3-1-89	to	4-26-89
Pilot evaluation	6-1-89	to	7-30-89

Post Pilot

Modify RCRIS software as required	8-1-89	to	9-1-89
Bring up Non-Pilot Region IV states	8-1-89	to	12-30-89

NATIONAL IMPLEMENTATION

Phase 1 (three Regions and States)	1-1-90	to	3-30-90
Phase 2 (next three Regions and States)	4-1-90	to	6-30-90
Phase 3 (remaining Regions and States)	7-1-90	to	9-30-90

2. STATE HQ/REGIONAL IMPLEMENTATION

The primary reason for completing the plan at this time is to notify EPA HQ of the state's intent on being a RCRIS user and Region X's need to evaluate our request for an equipment grant proposal. The following milestones for RCRIS implementation in Washington are listed below. Many decisions are based on current expectations of the pilot demonstration in Region IV and will need to be revised when new information becomes available.

Write DRAFT RCRIS Implementation Plan	4-7-89	
Comment on draft plan (including EPA Region X)	4-7-89	to 5-12-89
Conduct region office surveys (equipment/data clean-up/staffing)	4-30-89	to 5-30-89
Receive pre-release of software	7-1-89	
* Receive Pilot workload results and complete workload model	7-30-89	
* Demo to Regions	8-1-89	
Complete FINAL Implementation Plan	8-30-89	

Assist in hiring CIC-II	7-15-89
Assist in hiring ET-II's	8-15-89
Train staff	8-1-89
Attend satellite training course (Seattle)	9-27-89

Actual data activities begin occurring here

Begin Data Clean-up	10-15-89 to (resource dependant)
Begin direct data entry into RCRIS	1-1-90
RCRIS system fully adopted	2-28-90

Around August 89 the results from the pilot should be available for the state to accurately determine workload impacts of RCRIS implementation. At this time, the final Implementation Plan can be completed and the optimal system instituted.

EPA/NGA TECHNICAL SUPPORT

TO BE DEVELOPED

TRAINING PLAN (EXAMPLES)

RCRIS DBA Training

This training class is designed to provide the DBA with an understanding of his/her role and the tools required to keep RCRIS running on a daily basis. The class will provide detailed instructions on the database administration guidelines and procedures implemented in RCRIS software, which insure that programs and databases will remain secure and operative.

- o Installing FOCUS and RCRIS

  This training will be conducted by the RCRIS Installation Team. The DBA will be present during this activity to participate in the installation process.

  In addition to being instructed on the initially installed software, the DBA will be advised on what to expect when upgrading to a new release of FOCUS or RCRIS.

- o File Structure/Data Element Dictionary

  This discussion will review the RCRIS/FOCUS data file structures and the data element dictionary. The emphasis will be placed on the relationship of files to one another and the impact different segments have on each other. The goal of this discussion is to give the DBA an idea of the internal working of RCRIS for better use of TableTALK and other FOCUS reporting capabilities.

o Security

This will discuss setting up new users and appropriate security levels. Case examples will be provided.

o Data Maintenance

This module will cover the impact of changing or deleting parent and segment/record level RCRIS information. For example, the impact of changing a Handler ID or deleting a Unit Group will be discussed. Case examples will be provided.

o Lookup Files

The modification of lookup files will be discussed. The importance of these control files will be reviewed in terms of data integrity and information control both from the perspective of the EPA and the State. Local guidelines for establishing ETEMPLAT event entries will be reviewed. Case examples will be provided.

o Utilities

The FOCUS RESTORE and REBUILD capabilities will be discussed. Case examples will be provided.

o Backups

Proper methods for backing up the database will be reviewed. The DBA will learn to perform a full database backup.

o Hands-On Work Support - During The Training Week

The training team will provide support during the week for the new DBA on an as-needed basis.

o Overview Of RCRIS One Hour

This module will provide a general look at RCRIS. Topics covered will include:

- Comparison of RCRIS and HWDMS: A look at the differences between the two systems with an emphasis on the improvements offered by RCRIS.

- RCRIS Program Modules Overview: A discussion of each work package looking at the types of data involved and how the individual modules integrate together into RCRIS.

- Key management reports.

Data Collection

This module will discuss the various RCRIS data input forms and the collection of data for entry into all RCRIS modules. Sample data input form exercises previously mentioned will be developed for an ongoing case example which will in turn be used as input for later training modules.

Data Entry

Data entry personnel will use the case example input forms from the Data Collection Module and will input information into RCRIS. This module will cover:

- Work Packages and Data Elements: Students will enter data in all the modules following the training case examples.
- Lookup Files and Data Integrity: Students will review the concept of a lookup file and will become familiar with their use in RCRIS.
- Data Editing and Validation: Data relationships between data elements and valid value edits will be discussed.

RCRIS Reporting

The purpose of this course is to cover in detail all reports available on the RCRIS menus, as well as introduce users to ad hoc reporting. Lectures will include descriptions of each report, explanation of data displayed in the report and how to use it, where each report

is located in RCRIS, how to generate a report providing selection and sort criteria, translating/converting information from a report (when data from reports is used for input into other systems/forms). An overview of the capabilities of TableTALK will be provided, along with simple examples using Handler, Permitting Corrective Action and Enforcement information. Note that this effort will be limited and will not expect to replace formal FOCUS training.

- Hands-On Work Support - During The Training Week

  After the formal training material is completed, the training team will be on hand for the training week to work with user's real life problems. Hand-holding will be provided for RCRIS data collection, data entry and report generation.

Merge Process

Working with the merged database will be reviewed. This includes transferring data, oversight reporting considerations and the MOU and IOR tables. Case examples will be provided.

APPENDICES

APPENDIX 1 - RCRIS HISTORY AND BACKGROUND

Taken from RCRIS Pilot Implementation Plan

Discussion Draft dated 12/23/87

1.0 INTRODUCTION

1.1 THE RCRA PROGRAM

Under the provisions of the Resource Conservation and Recovery Act (RCRA) of 1976, the Environmental Protection Agency (EPA) is responsible for gathering and reporting information necessary for regulating the generation, transportation, storage, treatment and disposal of hazardous wastes.

Within EPA, the Assistant Administrator for Solid Waste and Emergency Response (OSWER) is responsible for developing and overseeing the RCRA program. Two offices within OSWER have key roles, the Office of Solid Waste (OSW) and the Office of Waste Planning and Enforcement (OWPE). OSW establishes regulations, develops program policy, and oversees the program's implementation. OWPE has responsibility for developing guidance and overseeing the program compliance and enforcement activities. The ten EPA Regional Administrators have the responsibility for executing the RCRA program, while OSWER retains the authority for policy formulation, program development, and national oversight, management, and evaluation.

Under RCRA, EPA can delegate permitting and enforcement responsibility to states that have established programs which meet or exceed national requirements. Many states had already assumed such authority when Congress revised RCRA by passing the Hazardous and Solid Waste Amendments of 1984 (HSWA). At that time Congress made important changes to the basic RCRA program. EPA must implement the HSWA provisions in all states, as well as continue the basic RCRA programs in states that have not yet been delegated RCRA authority.

1.2 HWDMS

Presently most federal RCRA information-processing requirements for tracking the status of hazardous waste permits, biennial reports, compliance inspections, enforcement activities, permit issuance events and financial data are met through use of the Hazardous Waste Data Management System (HWDMS). HWDMS is a five-year-old centralized system that has been repeatedly modified to respond to evolving program requirements by adding alternate information management concepts into the original design.

HWDMS currently stores about 87,700 notifications from handlers subject to RCRA regulation (excluding small quantity generators). Of these, about 70,000 notifications describe generators, and about 13,000 notifications describe waste transporters. The information for generators and transporters consists of notification and enforcement data only, because such handlers are not required to obtain a permit.

Facilities which treat, store or dispose of hazardous waste (TSDs) are required to obtain a permit. These include about 3,000 treatment and storage facilities, and about 1,700 disposal facilities. Of the 3,000 treatment and storage facilities, about 1,000 have been issued RCRA permits, or have permit applications and/or closure plans being processed; the remaining 2,000 are operating under interim-status regulations.

The data on the 1,700 hazardous waste disposal facilities listed in HWDMS are of great interest to Congress and the general public. This group includes about 1,000 land-disposal facilities that lost interim status as a result of not meeting the groundwater monitoring, financial responsibility or certification requirements, or permit application deadlines, which were imposed by the 1984 HSWA provisions. It also includes the 67 commercial and 68 federal land disposal sites that are often singled out for close examination. EPA receives numerous requests for both detailed and summary data on these facilities, but HWDMS does not provide a mechanism to quickly and efficiently respond to these requests.

Most of the automated data processing in state RCRA programs involves the management of data for compliance monitoring and enforcement, manifest tracking, groundwater monitoring, and comprehensive facility management plans. The majority of the states participating in the RCRA program use some form of automation for their record keeping and information processing. Most of the states that are automated use a combination of mini- or mainframe computers in conjunction with microcomputers. Much of the data management by the states is conducted on systems developed independently of HWDMS.

Many states have turned to these alternate data management systems, instead of HW DMS, for a variety of reasons:

- states have no sense of ownership of the HWDMS data;
- there was no state participation in the development process of HWDMS;
- HWDMS does not allow for tracking of some highly individualized and creative program variations developed by the states;
- software is difficult to use and inflexible;
- there is a lack of clear definition and reporting requirements;
- training is inadequate for state and regional staff;
- states are forced to spend considerable time reconciling the HWDMS data with the manual data supplied to EPA; and
- few standard reports exist. HWDMS does not provide for the detailed tracking of complex permitting and enforcement data required to support permit issuance and enforcement decisions.

EPA has also identified that HWDMS does not fully meet its program oversight needs because the system:

- is inflexible (does not support evolving program needs);
- provides only partial program support;
- lacks analytical tools;
- is perceived as difficult to use, resulting in redundant OSWER data bases; and
- is excessively expensive due to duplication of effort and inefficiency of operation.

An additional concern is that the delegation of authority to states is a key concept of the RCRA program, but HW DMS is unable to provide the data summaries required for conducting effective annual and semi-annual reviews, and for evaluating the equivalence of state programs with national requirements.

Finally, there is a recognized need for a data base which can assist EPA in understanding the scientific and environmental impact of hazardous waste facilities in the RCRA system. The link between compliance status and human and environmental health impacts has been poorly understood. As a tool for regulatory development, HWDMS provides only minimal program evaluations. Sophisticated environmental data tracking, and access to studies which could provide this understanding, are not available through HWDMS.

1.3 RCRIS

In response to these multiple information needs, EPA developed the Resource Conservation and Recovery Information System (RCRIS). RCRIS is not a redesign of HWDMS, but is a system which was designed with significant end-user input into its original architecture. RCRIS was designed to provide:

- improved data quality;
- upgraded and additional automated support;
- increased system responsiveness and user friendliness;
- increased utility to the states;
- enhanced ad hoc query and reporting capabilities;
- a more orderly process for system changes;
- more flexibility for database modifications;
- reduced complexity of the database structure;
- improved cost effectiveness of system operation and maintenance;
- timely and accurate management information to support enforcement and permitting decisions;
- control of rising data processing costs through reducing duplicative efforts;
- database support for regulatory development actions which respond to real world conditions.

The background research and fundamental concepts which contributed to the development of RCRIS, and the final system architecture, are discussed in the remaining sections of

this introduction.

It was recognized that such a system could not be implemented on a national level without a pilot trial period during which EPA or implementors could evaluate system performance. A trial period of three months, during which the performance of RCRIS in four states, one region, and EPA Headquarters will be evaulated, was selected for the pilot. Parts 2-7 of this document provide detailed plans for implementation and evaluation of the RCRIS pilot.

2.0 BACKGROUND

2.1 DEVELOPMENT OF RCRIS

Since April 1986, daily guidance and management of the RCRIS project has been the responsibility of an EPA project manager in the OSW Office of Policy, Planning, and Information (OPPI). Project administration is assigned to the OSWER Information Management Staff (IMS). Advocacy for RCRIS is shared by the two Headquarters RCRA program offices, OSW and OWPE.

Policy direction and project oversight for the RCRIS project is provided by a Technical Evaluation Panel composed of representatives of EPA's OSWER, OSW, OWPE, Office of Information and and Resources Management (OIRM), and the Office of Research and Development (ORD). This panel is responsible for evaluating each phase of the project as it is completed, and for authorizing work on the next phase.

EPA also established a RCRIS Resource Group to guide the project design, and to provide a channel for distributing information to the many constituencies interested in RCRIS development activities. The Resource Group consists of an equal number of members from EPA Headquarters, EPA Regions, and states. The RCRIS team is supported by contractors who have in-depth experience with the hardware and software used to specify and prototype the systems, and by contractors who will assist in pilot implementation.

State interests are represented through the National Governors Association (NGA). The RCRIS Advisory Board, which was developed under an NGA/EPA cooperative agreement, is composed of an administrative staff with representatives from 15 states from each regional area and a cross-section of state programs. The states represented on the Board are:

- California
- Colorado
- Georgia
- Illinois
- Indiana
- Kansas
- Massachusetts
- Ohio
- New Jersey
- New Mexico
- New York
- Puerto Rico
- Washington
- West Virginia
- Wyoming

During the spring and summer of 1986, the RCRIS Development Team, assisted by the Resource Group, conducted over 100 interviews of EPA regional and headquarters staff to determine user needs. At the same time, NGA's Advisory Board conducted a nation-wide survey of state Hazardous Waste Program Directors to characterize state hazardous waste programs, and to determine state user needs. In addition to the concerns discussed above,

the surveys identified the following issues:

- What are EPA/State Partnership roles in determining state reporting requirements?
- Who should own the data and where should it reside?
- What level of detail is required for reporting to EPA?
- What are the benefits of tracking individual hazardous waste units (surface impoundments tanks, etc.) versus facility-level tracking?

In light of these concerns, it was concluded that the only system which could foster a sense of importance of the RCRIS data among users would be one that respects the separate domains of RCRA authority and which supports the needs of both program oversight and program implementation.

2.2 THE "TWO DOMAIN" CONCEPT

As a result of these preliminary interviews and surveys, NGA's Advisory Committee recommended developing a "Two Domain RCRIS" concept. This concept was adopted into the ultimate RCRIS design. The "Two Domain" concept helps differentiate between those who implement (Implementation Domain) and those who oversee (Oversight Domain) the RCRA program. The Implementation Domain encompasses the execution and enforcement of RCRA or equivalent state statutory requirements and regulations. Implementation data is the information that is generated and managed to serve this purpose.

The Oversight Domain involves the review of the performance and effectiveness of state agencies, and the monitoring of national progress toward environmental goals. Oversight data are generated and managed to serve this purpose. Within RCRIS, the management of oversight data will be the responsibility of the EPA Regions and EPA Headquarters.

In most cases, those states which have EPA-authorized RCRA programs will be the implementers, and the Regions will play the oversight role; in cases where the state does not have delegation, the Regions will be the implementers and also play the oversight role. Implementation data are comprised of core data and state implementer data. Core data are those data which will address standard RCRA implementation data needs and, at the same time satisfy the Region's and Headquarters oversight reporting requirements. This data will be directly transferred to the Oversight Domain. State implementation data includes information which is unique to the specific data needs of the particular states which would not be needed for oversight.

Oversight data is comprised of commonly defined data which includes core data and special request data. Core data is routinely and regularly provided by implementers to EPA; special request data is that data which implementers make available to EPA upon receipt of special requests.

States adopting RCRIS will in effect have their own in-house management information system. The collection, entry, assessment, management, and maintenance of RCRIS information will be the state's responsibility, and EPA will receive a subset of each state's data once a month for oversight activities.

While the two domain concept serves as a foundation for the RCRIS organizational structure, EPA has determined that the states and the Regions will work together as "co-implementers". The Regions will therefore maintain an implementer data base for each state.

The two domain concept provides a framework for information to flow from the states to Regions to EPA Headquarters and back. Through the "Two Domain" organization of RCRIS, three data bases will exist to transfer information: the state's implementer data base, the Region's implementer data base and a merged data base which will reside in the Region and which will contain implementer data from both the Regional and state data bases. The merged data base is designed to avoid conflicting data between the states and Regions. The merged database is used to create an updated oversight database, which will ultimately provide program information to EPA Headquarters.

2.3 OTHER ASSUMPTIONS

Further concepts fundamental to RCRIS are that:

- all oversight data will be jointly defined and agreed to by the states and EPA;
- data that is solely owned by a given RCRIS user cannot be modified (either electronically or through interpretation) by any other user;
- non-core implementation data may be physically located on a computer, owned by an implementer, to which EPA may not have direct access;
- where feasible, commonly defined data will be sent via electronic data transfer from the implementation to the oversight module.

Not only will the states collect and maintain implementer data (to the extent that the state is authorized by EPA to conduct a hazardous waste program), but they will also be able to add state-specific information and functions to the basic RCRIS structure to meet their unique information processing needs. For changes that affect the basic RCRIS structure, change control procedures will be established that can incorporate user recommendations for system modifications.

It was recognized during the surveys, interviews and discussion meetings that the tracking of sufficient data elements for each hazardous waste management unit (tanks, landfills, surface impoundments, etc.) is necessary to fully evaluate permitting and compliance status. However, some facilities operate many units under one identification number, each of which may be in differing compliance status and differing permit status (closure, post

closure, permitted, etc.). The RCRIS Development Team recognized that tracking each individual hazardous waste management unit would be unnecessarily cumbersome. To address this issue, the Team proposed the unit-count concept, which groups numbers of unit types at each facility (e.g., 5 storage tanks, 1 surface impoundment, 2 landfills). Unit count data will be entered into RCRIS only for permitting, closure, post closure, and corrective action activities.

3.0 STRUCTURAL APPROACH/SYSTEM ARCHITECTURE

RCRIS consists of nine major functional areas, called application modules, which are described below. The three application modules which will be implemented in the RCRIS pilot are Handler Identification (HID), Permitting/Closure/Post Closure (Permitting), and Compliance Monitoring and Enforcement (CM&E).

The data bases for the three modules behave as one data base because they are joined by linking data elements. This means that certain groups of data elements in one module are linked to certain groups of data elements in another module, if those groups have at least one data element in common. Functionally there is therefore a single data base known as the RCRIS data base.

3.1 HANDLER IDENTIFICATION

The HID data base is the key to entering information in RCRIS. In the RCRIS system, the term handler refers to generators, transporters and treaters, storers and disposers (TSDs) of hazardous waste. Information on a given handler must be entered into the HID data base before any Permitting or CM&E information related to that handler can go into RCRIS. The other data bases are linked directly to the handler's Identification Number.

The Primary ID Number (EPA ID or State ID) is the key to the record. Each handler is assigned a unique key, which is typed in to begin retrieving or updating that handler's data. It also links a record in one part of the data base to related records in another part.

The HID module creates a master computer file of descriptive information on all hazardous waste handlers in the United States, and provides the most current repository of descriptive handler information such as name, location and types of waste management activities.

Handler ID information can enter RCRIS from submitted Notification forms, inspections or Biennial Reports. Once in the system, Handler ID information can be updated from other RCRIS modules or from other automated data systems (e.g., EPA's Facility Index System).

3.2 PERMITTING/CLOSURE/POST CLOSURE

The Permitting/Closure/Post Closure module tracks completed, scheduled, and projected events associated with the permit/closure application processing and administration. The implementer portion of this module includes a data management system for basic permit/closure data (e.g., type of permit, types and capacities of processes), milestone-accomplishment data for tracking the progress of an application, and a planning/tickler system for work-planning purposes.

This module also provides for uniquely identifying hazardous waste handling operations at the waste handling unit level (i.e., at a sub-facility level), according to the level of detail chosen by the responsible agency.

The oversight portion of the Permitting module uses the data on permit/closure activity for analysis of implementer performance, development of regulations, and reporting on the attainment of RCRA goals. The Permitting module is highly dependent on the data maintained by the Handler Identification application module, and is expected to be used often in conjunction with companion modules for facility management planning, corrective action, and compliance monitoring and enforcement.

Dates and event description data in this module are intended primarily for assessing the performance of RCRA regulatory programs. This module is not a primary source of information for making basic permit processing decisions (e.g., Should a Notice of Deficiency be sent to the permit applicant? Should a final determination be made to issue a permit?).

The Permitting module will not automate the permit technical review procedures. RCRIS will have limited utility with respect to assisting the permit writer in accomplishing his/her daily tasks. There are three reasons for this: 1) the sheer bulk of information, 2) the lack of consistent structure and 3) the textual and graphic nature of the information.

The Permitting module will not track permit conditions established by the permit writer. These permit conditions often take the form of a schedule for the compliance of certain "conditions" for permitting. The conditions are very specific to the particular permit application and not easily generalized to allow their lengthy text to be categorized for ease of data entry.

Provisions for tracking exposure information and health assessments are not included in RCRIS. This information is considered an essential part of a complete Part B application, and will be reflected in the event code for determination of completeness.

The yearly review of financial instruments is considered a compliance issue. This information can therefore be tracked in a tickler file within the CM&E module, and is not included in the Permitting module.

It is anticipated that groundwater monitoring information will be tracked in the Facilities Management and Environmental Data Application modules. For permitting purposes, the only information that will be required is a flag indicating when an owner or operator who is requesting a permit is in or out of compliance for groundwater monitoring.

The permitting module *is* designed to meet many of the permit writers' needs with the following features: 1) automated shipment of data to oversight; 2) tracking of implementer specific events; 3) capability to schedule both core and implementer events; 4) capability to store commitment information by quarter; and 5) basic resource management capabilities.

3.3 COMPLIANCE MONITORING AND ENFORCEMENT

The Compliance Monitoring and Enforcement (CM&E) application module provides automated support for all implementer and oversight enforcement-related activities. The implementer portion of this module provides record keeping, information processing, and reporting records for the following activities:

- Compliance evaluation inspections, sampling inspections, record reviews, comprehensive ground-water monitoring evaluations, follow-up evaluations, and case development inspections. Also included within this module are manifest tracking and incident reporting capabilities, and a tickler system for tracking work schedules. Data for these activities include date and type of planned evaluation, date and type of evaluation, participating agencies, responsible persons, and result of evaluation.
- Enforcement actions related to violations (type and level of concern) and evidence of release. Enforcement actions may be related to one or more evaluations, with an indicator denoting the most serious problem: ground water monitoring releases, permit, closure/post closure, financial responsibilities, compliance schedule, manifest, or other. Data for enforcement activity include date and type of enforcement event or change in compliance status, compliance schedule, date of achieving compliance, penalty assessed, and penalty collected.
- Analysis and oversight to assure timely and appropriate enforcement actions for non-compliance, especially violations pertaining to ground water monitoring and financial responsibility.

The CM&E module uniquely identifies hazardous waste handling operations at the generator, or facility, site level. This module does not uniquely identify sub-facility waste handling process units.

The implementer portion of this module is closely associated with data managed by the permitting/closure, handler identification, and corrective action modules. Data from these areas provide facility characteristics and classification, handler permit(s) issued, permit or closure applications being processed, and information on any permit or closure-related groundwater monitoring or corrective action measures.

Dates and event description information in this module are intended, principally, for assessing the performance of RCRA regulatory programs. This module is not a primary source of information for making basic CM&E decisions (e.g., Has a RCRA violation actually occurred? What types of enforcement action should be taken?).

The primary focus of the data in the oversight portion of this module is to aid in national oversight, management, and evaluation activities. A highly important aspect of this oversight is the determination of whether or not the responses from hazardous waste handlers are timely and appropriate. The data managed by the CM&E module are also used by other modules in determining individual facility compliance status for Strategic Planning and Management System (SPMS) variables, for national Freedom of Information (FOI) reporting, for responding to Congressional inquiries, and for assisting and formulating compliance monitoring and enforcement guidance.

3.4 DATA QUALITY/DATA MANAGEMENT

Data Quality/Data Management is not a single software module, but is a collection of software and procedures. It includes data assessment programs and database administrative procedures. Software is currently under development to incorporate the data element dictionary. There is also a feature to control data element definitions. The data assessment programs are automated tools which ensure completeness and consistency of data in the RCRIS database within all application modules by conducting data assessments, and measuring database integrity. It also includes software control (i.e., control and distribution issues for a distributed system).

3.5 OTHER APPLICATION MODULES

Only these four initial modules have been developed for use during the pilot trial period. Additional modules which are under development, and which will be available at the time of national implementation of RCRIS, include:

Corrective Action Module - supports the permit-writing and program-enforcement coordination necessary to achieve a complete, timely, and cost-effective corrective action program.

Program Management and Evaluation Module - supports regional and national management and evaluation of the RCRA program through its statistical analysis and planning capabilities.

Regulatory and Guidance Development Module - provides information about RCRA program activities to the developers of RCRA regulations, and helps evaluate the need for new or improved guidance for state and EPA implementers.

Facility Management Planning/Environmental Data Module - supports the development and analysis of facility management plans, and stores and processes environmental data associated with the RCRA program.

Program Administration Module - supports administration of state programs (e.g. authorizations and grants) and supports EPA resource management activities (e.g. budget development, contractor activity).

APPENDIX 2 - SYSTEM ACCESS / CHANGES / LINKAGES

4.0 SYSTEM ACCESS, CHANGES, AND LINKAGES

4.1 SYSTEM ACCESS

RCRIS may be accessed directly by a field inspector for entry and receipt of evaluation reports, or data entry and retrieval may be controlled at a central location according to individual state needs. Enforcement action data may be entered directly by a field inspector or CM&E officer, or through a data-entry operator. Direct entry by field inspectors or compliance officers would provide a high probability of data accuracy and integrity.

Alternatively, RCRIS data may be entered by someone transcribing source documents onto forms for a data-entry operator. The information on these forms would then be entered, a turnaround document generated for the transcriber, the document verified against the transcribed material, and the data cleaned and edited. This mode of entry places the burden on the originator of the data for quality control and accuracy. RCRIS may be also used by individuals located in different district or regional state offices.

RCRIS data that has been transmitted to oversight from the states will be maintained in a central repository on IBM 3090s and IBM 4381s. The IBM 3090s are at EPA's National Computer Center and the IBM 4381s are installed at each of the ten regional EPA data centers. EPA Headquarters and Regions can access the database and download RCRIS data to a personal computer (PC) where each user can perform the specific manipulations or data analyses appropriate to his/her needs.

4.2 CONFIGURATION MANAGEMENT AND SYSTEM CHANGES

Configuration management (CM) is a discipline which manages the changes to an automated information system (AIS). A change is defined as any event, action, or policy requirement which can or does affect the scope of an AIS, its schedule, or resource requirements. CM involves technical and administrative reviews of the various stages of development and operation of an AIS. It is used to perform the following activities:

- Identify and document functional and physical characteristics of the components of an automated information system;
- Control changes to those characteristics;
- Record and report these changes as well as the resulting implemented status of the AIS;
- Identify and document inconsistencies among successive control points as they are established through configuration audits; and
- Resolve inconsistencies as they relate to system design, system test results, and system operations; and ensure that technical and user documentation reflect the resolution of these issues.

The six basic objectives for configuration management during the pilot are to:

- Provide a mechanism to ensure the documentation of all changes;
- Anticipate the effects of changes on the costs or schedules for implementation of RCRIS;
- Maintain the integrity of the pilot schedule;
- Maintain up-to-date documentation on the status of RCRIS and the pilot project;
- Ensure that changes and the project administrator's responses to them are communicated to all pilot participants; and
- Maintain a usable system that meets its original requirements.

System software for RCRIS will be maintained through a Configuration Management Board (CMB) that will rule on changes and updates to RCRIS. Types of changes that will impact RCRIS software are functional changes requested by RCRIS users, and changes in RCRA reporting requirements, regulations, and EPA reporting forms. Any changes to a form that add, delete, or change fields will require a database modification; a data dictionary update, including changes to edits and rules for fields; changes to help screens for data entry; and changes to all RCRIS reports affected by the changes. In addition, there will be changes to all procedures used to validate and verify data prior to data entry, and to those procedures used to inspect reports for data transmittal to oversight.

When RCRIS is fully functional at the national level, it will be redesigned periodically as new regulations are promulgated, or as user requests for changes are approved and implemented. Change control procedures will be evaluated during the pilot period. Because of the short duration of the pilot, it is anticipated that all changes recommended and adopted during the pilot will be incorporated together at the end of the pilot exercise, unless a major problem is discovered which significantly disrupts the use of the system.

Once software modification is approved by the CMB and implementation has occurred, copies of the new version of RCRIS will be made and distributed to all RCRIS users by EPA through the data base administrators in each Region and state.

4.3 RCRIS LINKAGES

EPA maintains several national systems which may be linked with RCRIS. Linkages to these systems have not been fully established, but communications pathways for interfacing with these systems are currently being studied. These other national data management systems include:

- Permit Compliance System (PCS)
- Hazardous Waste Data Management System (HWDMS)
- Grants Information and Control System (GICS)
- Compliance Data System (CDS)
- National Emissions Data System (NEDS)
- Storage and Retrieval of Aerometric Data (SAROAD)

- Comprehensive Environmental Response. Compensation and Liability Information System (CERCLIS)
- Facility Index System (FINDS)
- Biennial Reporting System
- DOCKET System

APPENDIX 3 - RCRIS EQUIPMENT GRANT PROPOSAL

APPENDIX 4 - EXISTING RCRA DATA MANAGEMENT

EXISTING RCRA DATA MANAGEMENT

Notification

State regulations and an agreement with EPA Region X stipulate that all companies wanting to enter or exit the notification system must do so through the Department of Ecology. The state notification forms, although different in format, contain all information required by EPA. Ecology conducts a completeness review and mails copies of the notification forms to Region X where ID numbers are assigned (including companies with state regulated only wastes). Region X enters the data into HWDMS and returns hardcopy listings and magnetic tapes to Ecology reflecting all modifications (new, modifications, cancellations, withdrawals). Ecology staff read the tape data into a SAS (Statistical Analysis System) data base and process the information directly.

Our main purpose in the notification process is to be the primary focal contact for the regulated community on hazardous waste matters, ensure quality of the information, and provide a direct link of the notification data to the state hazardous waste annual reporting system which is also in SAS.

Compliance Monitoring and Enforcement

At present EPA Washington Operations receives all inspection, permitting, and enforcement data by hard copy reports through the mail. EPA Operations transfers the raw data onto compliance monitoring enforcement log sheets (CMEL's). Region X key inputs the data and submits printouts to Ecology to review. The state relies on Region X for all computer analyses.

Permitting

to be developed with Tim Nord

APPENDIX 5 - MEMORANDUM OF UNDERSTANDING (MOU)

MEMORANDUM OF UNDERSTANDING (MOU)

The Memorandum of Understanding (MOU) is a formal agreement between the overseer (EPA) and the implementer (EPA or State) as to the change control of all data entered into RCRIS. Changes to the data can only be made by the implementing agencies. This is a critical concept in the development of the two domain system. The main purpose is to ensure that data integrity is maintained during the exchange of information between all parties.

The MOU contains one key concept, the Implementor of Record (IOR) filter. Data assigned to the IOR filter will have a value of E or S, E for EPA and S for state, respectively. While every implementer, whether a state or EPA Region, has complete control of all data in its implementer data base (IDB), when the two sets of data, one from the state's IDB, the other the Region's IDB for that state, are merged to create the merged data base (MDB), only the data from the Implementor of Record (IOR) will go into the MDB. This is accomplished by the IOR filter in RCRIS, a part of the merge process.

A matrix table below will be jointly agreed upon by Region X and Washington state to accurately define all data elements are under exclusive control of the respective implementing agency.

IOR ASSIGNMENTS FOR RCRIS

(Circle One)

Handler ID	EPA	STATE	JOINT
Notification	EPA	STATE	JOINT
PART A	EPA	STATE	JOINT
BIENNIAL REPORTS	EPA	STATE	JOINT
UNIT GROUPS	EPA	STATE	JOINT
AREAS FOR C.A.	EPA	STATE	JOINT
CONSTITUENTS FOR C.A.	EPA	STATE	JOINT

CONTACT TYPES

(Circle One)

N	Notification	As set above		
A	Part A	As set above		
R	Biennial Report	As set above		
E	Emergency Contact	EPA	STATE	JOINT
F	Fee Contact	EPA	STATE	JOINT
G	Implementer Defined	EPA	STATE	JOINT
H	Implementer Defined	EPA	STATE	JOINT
I	Implementer Defined	EPA	STATE	JOINT
J	Implementer Defined	EPA	STATE	JOINT
K	Implementer Defined	EPA	STATE	JOINT
L	Implementer Defined	EPA	STATE	JOINT
M	Implementer Defined	EPA	STATE	JOINT